



WATER RESOURCES RESEARCH GRANT PROPOSAL

TITLE: Development of a GIS-Based Approach for Better Statewide Water Use Estimation

FOCUS CATEGORIES: water use (WU), water supply (WS), models (MOD)

KEYWORDS: crop water use, data analysis, data storage and retrieval, information dissemination, irrigation, land use, planning, statistics, water use data

DURATION: Two years (July, 2000, through June, 2002)

FEDERAL FUNDS REQUESTED: \$138,431

NON-FEDERAL FUNDS PLEDGED: \$138,519

PRINCIPAL INVESTIGATORS:

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CONGRESSIONAL DISTRICT: Utah 1st District.3

ABSTRACT

The US Geological Survey (USGS) is required by Federal mandate to estimate and report on water use for each state at five-year intervals. While the periodic USGS estimates of statewide water use are valuable for planning and management, many states--Utah included--have recognized a need to generate water use estimates on an annual basis, which would be more valuable in identifying and analyzing water use trends and forecasting future water use. This implies a need to provide better methods of data collection and analysis to improve the efficiency and accuracy of generating water use estimates.

Advances in data collection, analysis, and display technology show great promise in addressing the above needs. The proposed project will exploit electronically available data, GIS technology, and attendant analytic methods to develop a methodology for more efficiently generating statewide water use estimates. The objectives of the project are to: (1) formulate the conceptual design of a statewide water use model; (2) develop and implement approaches for estimating individual water use components consistent with the USGS water use categories; (3) estimate trends in water use in Utah in order to facilitate water use estimation for any given year; and (4) develop a methodology to forecast future water use.

The water use estimates provided by these tools will be compared against the results of standard USGS water use estimation methods. Further, procedures will be developed for utilizing these methods to generate water use trend information and forecasts. The question of portability of the methods to other states will be assessed in conjunction with inputs from USGS personnel involved in the project..4